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LISTS OF SPECIES

Fish, Taquara river basin, northern of the state of Paraná, Brazil.

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Abstract: Taquara River is situated in an agriculturist region, on the northern portion of the Tibagi river basin, state of Paraná. Fish fauna was collected in five stretches of the Taquara River and in nine headwaters of its tributaries, in the period of May to December 2006. Six orders, 22 families, and 74 species were collected, in a sum of 2,389 individuals. The orders Characiformes and Siluriformes were dominant.

Introduction

According to Lowe-McConnell (1999), the Neotropical region has the richest and the most diversified freshwater fish fauna of the planet, with a richness of 6,025 species (Reis et al. 2003). However this value probably increases, once that the number of studies in environments of streams and headwaters has raised in not yet inventoried hydrographic basins (Vari and Malabarba 1998). Castro (1999) cited that these environments must receive priority in studies, before many of the information are lost with the human deleterious influence. These environments are mainly composed by small size species, dependent of allochthonous organic matter to survival (Lowe-McConnell 1999), and generally presenting high degree of endemism (Castro et al. 2003). This work purposed to carry through a survey of the fish species on Taquara river basin, once studies of fish fauna were inexistent in that basin.

Materials and methods

The study was developed in the Taquara river basin, one of the main tributaries of the low portion of Tibagi River (Figure 1). Surveys were done in five stretches of Taquara River: headwaters (23°40'04.1" S, 51°19'12.1" W), high-middle (23°37'11.2" S, 51°13'55.6" W), middle portion (23°34'39.7" S, 51°09'57.2" W), lower middle (23°33'47.2" S, 51°04'18.5" W), and low portion (23°30'51" S, 50°57'18" W), and in the headwater of its nine main tributaries: Califórnia (23°39'36.7" S, 51°18'27.1" W), Clementino (23°42'26.7" S, 51°13'47.2" W), Clementino Primeiro (23°35'29.7" S, 51°17'37.7" W), Saltinho (23°41'41.0" S, 51°16'30.8" W), Jacucaca (23°38'17.3" S, 51°20'48.2" W), Cerne (23°34'38.2" S, 51°22'17.6" W), Lajeadinho (23°32'06.3" S, 51°12'02.1" W), Taquarinha (23°32'31.9" S, 51°02'12.1" W), and Gabriel da Cunha (23°38'17.3" S, 51°20'48.2" W) (Figure 1).

The sampled sites presented scarce or absent riparian vegetation, and agricultural activity in their edges. The substratum was basically composed of stones, rocks and flagstones, although there were depositions of red latosol (*terra roxa*) in some stretches. The stretches present riffles, shaft and areas of calm waters. The samples were made among May to December 2006. The fishes were collected in 50 meters blocked stretches, with its extremities enclosed by a slender nest (5.0 x 1.2 m, mesh sizes 2 mm between adjacent knots) whenever possible, to avoid organisms escape. In the capture we used sieves, drag nets (identical meshes of blockade), and casting nets (mesh sizes 2 to 5 cm). In the middle portion, lower middle and low portion stretches we still used gill nets (mesh sizes 2 to 10 cm on opposite knots).

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Adequate literature were used in the identification (Albert and Crampton 2003; Castro et al. 2003; 2004; Jerep 2006; Jerep et al. 2006; Graça and Pavanelli 2007) and classification of species (Reis et al. 2003). Voucher specimens are deposited in the collection of Museu de Zoologia at the Universidade Estadual de Londrina (MZUEL), under the numbers 4376 to 4507 (except 4412, 4416, 4454, 4455, and 4459), 4539 to 4704, 4706, 4707, and 4712. Some collection details of all species can be found in the website http://splink.cria.br/sample_search.

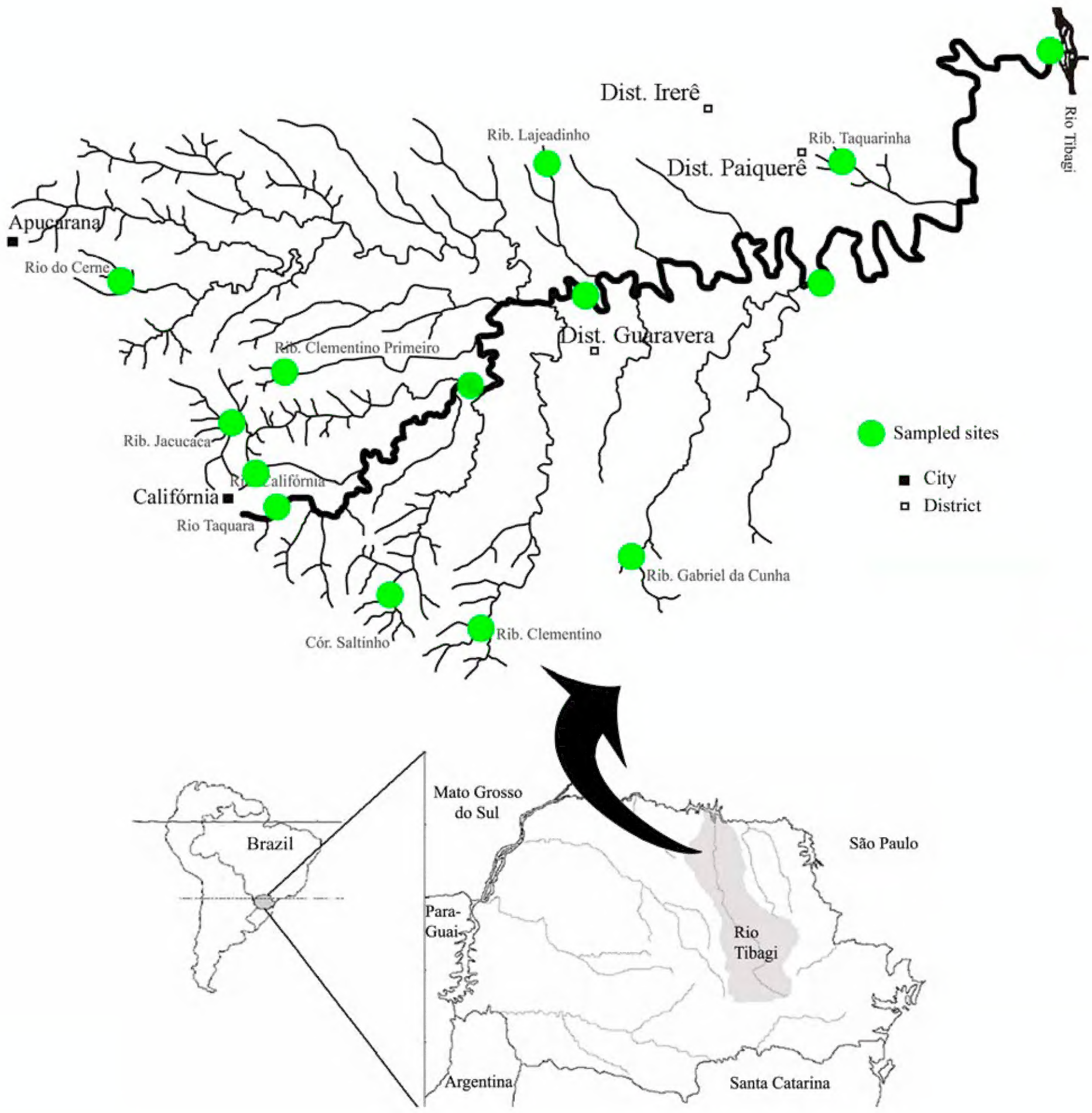

Figure 1. Sampling sites in the Taquara river basin, low portion of Tibagi river basin

Results and discussion

Two thousand three hundred and eighth-nine specimens of fish were collected, belonging to six orders, 22 families and 74 species (Table 1). The bigger dominance of species were represented by Characiformes and Siluriformes, respectively 36.49 % and 45.95 %, followed by Gymnotiformes, Perciformes, Cyprinodontiformes, and Synbranchiformes (Table 2). This pattern seems to be a trend in Neotropicals rivers, according to Lowe-McConnell (1999). This bigger ratio of Characiformes and Siluriformes was also observed on studies in the Tibagi river basin (Shibatta et al. 2002; 2006), and on studies in the high Paraná basin (Lemes and Garutti 2002; Casatti et al. 2001).

Amongst the Characiformes the predominance in richness was of Characidae and Anostomidae species, with eleven and six species respectively, with prominence for the genera *Astyanax* and *Leporinus*. Already in the Siluriformes dominance in richness pertained to Loricariidae species, of which eleven species belonged to the genus *Hypostomus*. The distinguished bigger richness of Loricariidae can be explained by the higher numbers of environments with riffles and rocks, habitats preferential of these species, in addition to many stretches sufficiently illuminated that propitiates growth of Algae, the preferential species' food. Gymnotiformes presented just two families and three species, and the order Perciformes, with only the Cichlidae family, presented five species, being *Oreochromis niloticus* introduced. Already in Cyprinodontiformes two species were collected, both from the same family, being *Poecilia reticulata* introduced. Finally, Synbranchiformes had one family and one species.

Table 1. Fish species collected in the Taquara river basin, between May to December 2006.

Order / Family / Species
Order Characiformes
Family Acestrorhynchidae
Acesthrorhynchus lacustris (Lütken, 1875)
Family Anostomidae
Leporellus vittatus (Valenciennes, 1859)
Leporinus amblyrhynchus Garavello & Britski, 1987
Leporinus elongatus Valenciennes, 1849
Leporinus friderici (Bloch, 1794)
Leporinus octofaciatus Steindachner, 1817
Schizodon nasutus Kner, 1859
Family Characidae
Astyanax aff. *eigenmanniorum* (Cope, 1894)
Astyanax altiparanae Garutti & Britski, 2000
Astyanax fasciatus (Cuvier, 1819)
Astyanax paranae Eigenmann, 1914
Astyanax sp.
Bryconamericus iheringii Boulenger, 1887
Bryconamericus stramineus Eigenmann, 1908
Galeocharax knerii (Steindachner, 1879)
Oligosarcus paranensis Menezes & Géry, 1983
Piabina argentea Reinhardt, 1866
Serrapinnus notomelas (Eigenmann, 1915)

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Table 1. Continuation.

Order / Family / Species
Order Characiformes (continuation)
Family Serrasalmidae
Myleus tiete (Eigenmann & Norris, 1900)
Serrasalmus maculatus Kner, 1858
Family Crenuchidae
Characidium zebra Eigenmann, 1909
Family Curimatidae
Cyphocharax modestus (Fernandez-Yepez, 1948)
Steindachnerina insculpta (Fernandez-Yepez, 1948)
Family Erytrinidae
Hoplias malabaricus (Bloch, 1794)
Family Paradontidae
Apareiodon affinis (Steindachner, 1879)
Apareidon ibitiensis Campos, 1944
Family Prochilodontidae
Prochilodus lineatus (Valenciennes, 1836)
Order Siluriformes
Family Auchenipteridade
Tatia neivai (Ihering, 1930)
Family Callichthyidae
Corydoras paleatus (Jenyns, 1842)
Family Cetopsidae
Cetopsis gobioides Kner, 1857
Family Heptapteridae
Cetopsorhamdia iheringi Schubart & Gomes, 1959
Imparfinis borodini Mees & Cala, 1989
Imparfinis mirini Haseman, 1911
Imparfinis schubarti (Gomes, 1956)
Phenacorhamdia tenebrosa (Schultz, 1964)
Pimelodella meeki Eigenmann, 1910
Rhamdia quelen (Quoy & Gaimard, 1824)
Family Loricariidae
Hisonotus insperatus Britski & Garavello, 2003
Hisonotus sp.
Hypostomus ancistroides (Ihering, 1911)
Hypostomus cf. *topavae* (Godoy, 1969)
Hypostomus hermanni (Ihering, 1905)
Hypostomus iheringii (Regan, 1908)
Hypostomus margaritifer (Regan, 1908)
Hypostomus nigromaculatus (Schubart, 1964)
Hypostomus paulinus (Ihering, 1905)
Hypostomus regani (Ihering, 1905)

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Table 1. Continuation.

Order / Family / Species
Family Loricariidae (continuation)
Hypostomus sp.
Hypostomus sp. I
Hypostomus strigaticeps (Regan, 1908)
Isbrueckerichthys calvus Jerep, Shibatta, Pereira & Oyakawa, 2006
Loricaria prolixa Isbrücker & Nijssen, 1978
Megalancistrus parananus (Peters, 1881)
Neoplecostomus sp.
Rineloricaria pentamaculata Langeani & Araújo, 1994
Family Pimelodidae
Iheringichthys labrosus (Kröyer, 1874)
Pimelodus heraldoi Azpelicueta, 2001
Pimelodus maculatus Lacépède, 1803
Family Trichomycteridae
Trichomycterus diabolus Bockmann, Casatti & de Pinna, 2004
Trichomycterus sp. A
Trichomycterus sp. B
Order Gymnotiformes
Family Apteronotidae
Apteronotus ellisi (Alonso de Arámburu, 1957)
Apteronotus sp.
Family Gymnotidae
Gymnotus carapo Linnaeus, 1758
Gymnotus inaequilabiatus (Valenciennes, 1842)
Family Sternopygidae
Eigenmannia virescens (Valenciennes, 1847)
Order Perciformes
Family Cichlidae
Cichlasoma paranaense Kullander, 1983
Crenicichla niederleinii (Holmberg, 1891)
Crenicichla sp.
Geophagus brasiliensis (Quoy & Gaimard, 1824)
Oreochromis niloticus (Hasselquist, 1757)
Order Cyprinodontiformes
Family Poeciliidae
Phalloceros caudimaculatus (Hensel, 1868)
Poecilia reticulata Peters, 1859
Order Synbranchiformes
Family Synbranchidae
Synbranchus marmoratus Bloch, 1795

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Table 2. Number of species and its proportions per Order of species collected in the Taquara river basin.

Order	Number of species	Percentual of species
Characiformes	27	36.49
Siluriformes	34	45.95
Gymnotiformes	5	6.76
Perciformes	5	6.76
Cyprinodontiformes	2	2.70
Synbranchiformes	1	1.35

This study contributes with the knowledge of the fish diversity of Tibagi river basin low portion, once the studies in this region are still scarce. The number of species presented by this work is highest than previous works carried through in that basin (Shibatta and Cheida 2003; Shibatta et al. 2006; Vieira and Shibatta 2007). It also shows that, from those 74 species here presented, 44 did not occurred in the studies made by Castro et al. (2003) in upper Paranapanema river basin in headstreams freshwater, where were registered 52 species. Our data stand its high ichthyofauna richness, once that Taquara River is a tributary of the Paranapanema. Considering only the upper portions of surveyed Taquara river streams, 12 species were not registered in the Paranapanema River.

From the collected specimens, at least nine species were not yet described in the literature, and this material is already being analyzed.

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